

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/508,921	06/07/00	ISAACS	J 07/26/00-14-2000

HM12/0914

EXAMINER

HUFF, S

ART UNIT	PAPER NUMBER
1642	7

DATE MAILED: 09/14/01

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/588,921	ISAACS ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Sheela J Huff	1642

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 19-40 and 55-65 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 19-40 and 55-65 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ .                                   |

## DETAILED ACTION

Claims 19-40 and 55-65 are pending.

### ***Priority***

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification (37 CFR 1.78).

Specifically 09/081707 and its current status must be included in the first line of the specification.

### ***Information Disclosure Statement***

The IDS filed 6/7/00 has been considered and an initialed copy of the PTO-1449 is enclosed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 19-24, 27-29, 32-37, 55-58 and 61-64 are rejected under 35 U.S.C. 102(b) as being anticipated by WO96/00503.

This reference discloses a conjugate, and a method of making said conjugate, of oligopeptides of PSA, which are 20 amino acids or fewer in length, and a cytotoxic moiety, wherein the cytotoxic moiety can be an anthracycline antibiotic such as doxorubicin, daunorubicin, epirubicin or idraubicin and wherein the conjugate can have a linker  $X_L$  where  $X_L$  can be leucine (see pages 3-4, 15-23, 36 and Example 4). This conjugate is used to treat prostate cancer. It is inherent that the cytotoxic moiety intercalates into a polynucleotide. The IC50, the rates of cleavage and LC50 disclosed in claims 32-37 are also inherent properties.

Claims 19-20, 22, 27-29, 32-37, 55-57 and 61-64 are rejected under 35 U.S.C. 102(a) as being anticipated by DeFeo-Jones et al US 5599686.

This reference discloses a conjugate, and a method of making said conjugate, of oligopeptides of PSA, which are 20 amino acids or fewer in length, and a cytotoxic moiety, wherein the cytotoxic moiety can be an anthracycline antibiotic such as doxorubicin, daunorubicin, epirubicin or idraubicin (see col. 2, 46-7 and 12). This conjugate is used to treat prostate cancer. It is inherent that the cytotoxic moiety intercalates into a polynucleotide. The IC50, the rates of cleavage and LC50 disclosed in claims 32-37 are also inherent properties.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating
- obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19-20, 22, 27-29, 32-40, 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeFeo-Jones et al US 5599686 in view of applicant's admission on page 8, lines 8-19, page 1, line 21.

The DeFeo-Jones et al reference has been discussed above.

The only difference between the instant application and the reference is that the reference does not specifically mention the water soluble substituent, the capping groups, the treatment of breast cancer or specifically show a treatment of prostate cancer.

Applicant admits on page 8 of the specification that the capping groups and water-soluble substituents are well known in the art and that their use is routine.

Applicant admits on page 1 that PSA is also found in breast cancer tissue.

Thus, in view of routine use of the capping groups and the water-soluble substituents, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any known capping group and/or water-soluble substituent with the oligomers of the primary reference. The use of many different oligomers is within the purview of one skilled in the art. In view of clear suggestion in the reference that prostate cancer can be treated, it also would have been obvious to treat prostate cancer. In view of the known association of breast cancer and PSA, it also would have been obvious to treat breast cancer using the conjugates. The IC50, the rates of cleavage and LC50 disclosed in claims 32-37 are also expected properties

Claims 19-24, 27-29, 32-40, 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeFeo-Jones et al WO 96/00503 in view of applicant's admission on page 8, lines 8-19, page 1, line 21.

The DeFeo-Jones et al reference has been discussed above.

The only difference between the instant application and the reference is that the reference does not specifically mention the water soluble substituent, the capping groups, the treatment of breast cancer or specifically show a treatment of prostate cancer.

Applicant admits on page 8 of the specification that the capping groups and water-soluble substituents are well known in the art and that their use is routine.

Applicant admits on page 1 that PSA is also found in breast cancer tissue.

Thus, in view of routine use of the capping groups and the water-soluble substituents, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any known capping group and/or water-soluble substituent with the oligomers of the primary reference. The use of many different oligomers is within the purview of one skilled in the art. In view of clear suggestion in the reference that prostate cancer can be treated, it also would have been obvious to treat prostate cancer. In view of the known association of breast cancer and PSA, it also would have been obvious to treat breast cancer using the conjugates. The IC50, the rates of cleavage and LC50 disclosed in claims 32-37 are also expected properties

Claims 19-27, 32-40 and 55-56 and 59-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denmeade et al Adv. In Pharm. Vol. 35 p. 281-306 (1996) in view of DeFeo-Jones et al WO 96/00503 or DeFeo-Jones et al US 5599686 in view of applicant's admission on page 8, lines 8-19, page 1, line 21.

Denmeade et al disclose a conjugate of a small PSA peptide and TG and suggests its use in the killing of proliferating cells. (page 301-302).

The reference does not state how small the PSA peptides are, does not disclose the linkers, the IC50, the LC50 and rate of cleavage, the capping groups and water-soluble substituents.

All of the secondary references have been discussed above.

In view of the fact that each DeFeo-Jones et al reference discloses the use of PSA peptides smaller than 20 amino acids, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use these as the small peptide of Denmeade et al. The IC50, the rates of cleavage and LC50 disclosed in claims 32-37 are also expected properties. In view of routine use of the capping groups and the water-soluble substituents, it would have been obvious to one of ordinary skill in the art at the time of the invention to use any known capping group and/or water-soluble substituent with the oligomers of the primary reference. The use of many different oligomers is within the purview of one skilled in the art. In view of clear suggestion in the reference that prostate cancer can be treated, it also would have been obvious to treat prostate cancer. In view of known association of breast cancer and PSA, it also would have been obvious to treat breast cancer using the conjugates.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DeFeo-Jones et al US 5866679--this reference is the US equivalent of WO 96/00503 and the claims of the US patent read on the instant invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela J Huff whose telephone number is 703-305-7866. The examiner can normally be reached on M,Th 5:30 am-2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Caputa can be reached on 703-308-3995. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

*Sheela J. Huff*  
Sheela J Huff  
Primary Examiner  
Art Unit 1642

sjh  
September 11, 2001